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APPLICATION NUMBER: *10/655,496*
FILING DATE: *September 03, 2003*
RELATED PCT APPLICATION NUMBER: *PCT/US04/22847*

Certified by

Jon W Dudas

Acting Under Secretary of Commerce
for Intellectual Property
and Acting Director of the U.S.
Patent and Trademark Office

UTILITY PATENT APPLICATION TRANSMITTAL

(Only for new nonprovisional applications under 37 CFR 1.53(b))

Attorney Docket No.	217.1019.02
First Inventor	Rechsteiner
Title	Bookmarks and Watchpoints for Selection and Presentation of Media Streams
Express Mail Label No.	EL 768 962 160 US

APPLICATION ELEMENTS

See MPEP chapter 600 concerning utility patent application contents.

ADDRESS TO: Assistant Commissioner for Patents
Box Patent Application
Washington, DC 20231

1. ☐ Fee Transmittal Form (e.g., PTO/SB/17)
   (Submit an original and a duplicate for fee processing)

2. ☐ Applicant claims small entity status. See 377 CFR 1.27.

3. ☒ Specification *(preferred arrangement set forth below)* [Total Pages **75**]
   - Descriptive title of the Invention
   - Cross Reference to Related Applications
   - Statement Regarding Fed sponsored R & D
   - Reference to sequence listing, a table, or a computer program listing appendix
   - Background of the Invention
   - Brief Summary of the Invention
   - Brief Description of the Drawings *(if filed)*
   - Detailed Description
   - Claim(s)
   - Abstract of the Disclosure

4. ☒ Drawing(s) *(35 U.S.C. 113)* [Total Sheets **2**]

5. Oath or Declaration [Total Pages ____]
   a. ☐ Newly executed (original or copy)
   b. ☐ Copy from a prior application (37 CFR 1.63 (d)) *(for continuation/divisional with Box 18 completed*
      i. ☐ **DELETION OF INVENTOR(S)** signed statement attached deleting inventor(s) named in the prior application, see 37 CFR 1.63(d)(2) and 1.33(b).

6. ☒ Application Data Sheet. See 37 CFR 1.76

7. ☐ CD-ROM or CD-R in duplicate, large table or Computer Program (Appendix)

8. Nucleotide and/or Amino Acid Sequence Submission *(if applicable, all necessary)*
   a. ☐ Computer Readable Form (CRF)
   b. Specification Sequence Listing on:
      i. ☐ CD-ROM or CD-R (2 copies); or
      ii. ☐ paper
   c. ☐ Statements verifying identity of above copies

ACCOMPANYING APPLICATION PARTS

9. ☐ Assignment Papers (cover sheet & document(s))

10. ☐ 37 CFR 3.73(b) statement *(when there is an assignee)* ☐ Power of Attorney

11. ☐ English Translation Document *(if applicable)*

12. ☐ Information Disclosure Statement (IDS)/PTO-1449 ☐ Copies of IDS Citations

13. ☐ Preliminary Amendment

14. ☒ Return Receipt Postcard (MPEP 503) *(Should be specifically itemized)*

15. ☐ Certified Copy of Priority Document(s) *(if foreign priority is claimed)*

16. ☒ Nonpublication Request under 35 U.S.C. 122 (b)(2)(B)(i). Applicant must attach form Pto/SB/35 or its equivalent.

17. ☒ Other *Technical Appendix*

18. If a CONTINUING APPLICATION, *check appropriate box, and supply the requisite information below and in a preliminary amendment, or in an Application Data Sheet under 37 CFR 1.76:*

☐ Continuation ☐ Divisional ☒ Continuation-in-part (CIP) of prior application No: **10/418,949; 10/418,739**

Prior application information: Examiner **NYA**   Group/Art Unit: **NYA**

For CONTINUATION or DIVISIONAL APPS only: The entire disclosure of the prior application, from which an oath or declaration is supplied under Box 5b, is considered a part of the disclosure of the accompanying continuation or divisional application and is hereby incorporated by reference. The incorporation can only be relied upon when a portion has been inadvertently omitted from the submitted application parts.

18. CORRESPONDENCE ADDRESS

☒ Customer Number or Bar Code Label   **22883**   or ☐ Correspondence address below

Name				
Address				
City		State		Zip Code
Country		Telephone		Fax

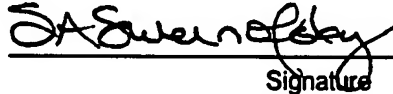| Name (Print/type)	Steven A. Swernofsky	Registration No. (Attorney/Agent)	33,040
Signature	*SA Swernofsky*	Date	09-03-2003

22883

NONPUBLICATION REQUEST UNDER 35 U.S.C. 122(b)(2)(B)(I)	First Named Inventor	Rechsteiner
	Title	Bookmarks and Watchpoints for Selection and Presentation of Media Streams
	Atty Docket Number	217.1019.02

I hereby certify that the invention disclosed in the attached application **has not and will not be** the subject of an application filed in another country, or under a multilateral agreement, that requires publication at eighteen months after filing.

I hereby request that the attached application not be published under 35 U.S.C. 122(b).

09-03-2003
_____
Date

_____
Signature

Steven A. Swernofsky   Reg no. 33,040
_____
Typed or printed name

This request must be signed in compliance with 37 CFR 1.33(b) and submitted with the application **upon filing.**

Applicant may rescind this nonpublication request at any time. If applicant rescinds a request that an application not be published under 35 U.S.C. 122(b), the application will be scheduled for publication at eighteen months from the earliest claimed filing date for which a benefit is claimed.

If applicant subsequently files an application directed to the invention disclosed in the attached application in another country, or under a multilateral international agreement, that requires publication of applications eighteen months after filing, the applicant **must** notify the United States Patent and Trademark Office of such filing within forty-five (45) days after the date of the filing of such foreign or international application. **Failure to do so will result in abandonment of this application (35 U.S.C. 122(b)(2)(B)(iii)).**

22883

PATENT APPLICATION

1

2

3   This application is submitted in the name of the following inventors:

4

5	*Inventor*	*Citizenship*	*Residence City and State*
6	Paul RECHSTEINER	Canada	Toronto, Ontario (Canada)
7	Shawn NEELY	Canada	Sunnyvale, California
8	Lawrence KESTELOOT	United States	San Francisco, California
9	Michael MALCOLM	United States	Aspen, Colorado
10	Stephen WATSON	Canada	Toronto, Ontario (Canada)

11

12   The assignee is *Kaleidescape*, a corporation having an address in Mountain

13   View, California.

14

15   TITLE OF THE INVENTION

16

17   Bookmarks and Watchpoints for Selection and Presentation of Media Streams

18

19   BACKGROUND OF THE INVENTION

20

21   1.   *Field of the Invention*

22

1   The invention relates to selection and presentation of media streams; in

2   aspects thereof, the invention relates to bookmarks and watchpoints, and to event han-

3   dling, for selection and display of videos from media, such as for example DVD and

4   other related media.

5

6   2.   *Related Art*

7

8   In systems for presenting information, such as for example information

9   relating to audiovisual media, users are able to present information already recorded on

10   digital media. For example, DVD player systems provide users with the ability to play-

11   back digital content pre-recorded on DVD media. In the incorporated disclosure (as de-

12   scribed below) such systems provide users with the ability to present (that is, display

13   video elements of and play audio elements of) media streams, either after or concur-

14   rently with download of digital content representing those media streams. In the in-

15   corporated disclosure (as described below) such systems further provide the capability

16   of downloading that digital content from one or more content servers.

17

18   A first problem with known DVD media playback is that the process of

19   playback involves interaction between the user and a pre-selected sequence of playback

20   capabilities, recorded onto the DVD media by someone other than the user (such as a

21   creator or distributor of that DVD media). For example, playback might involve navi-

22   gation of a selection menu, might involve playback of audiovisual messages the creator

1 or distributor has determined are advantageous for the user to be forced to watch (such

2 as for example an anti-piracy warning, or such as for example one or more advertise-

3 ments or pre-release announcements). Accordingly, it would at some times be advan-

4 tageous to avoid being restricted by choices imposed on them by the creator or dis-

5 tributor of the DVD media.

6

7   A second problem with known playback techniques is that the user might

8 have a substantial library of media streams from which the user might desire to present.

9 For a first example, the user might wish to present short clips (or "trailers") of individ-

10 ual movies as part of a process of selection or review of those individual movies. For

11 example, the user might wish to present a trailer for an individual movie as part of de-

12 ciding whether to purchase that movie (including for example on-line purchase of a

13 downloaded copy) or to present that movie to a selected audience (including for exam-

14 ple determining if that audience was interested in the movie in response to the selected

15 trailer). For a second example, the user might wish to point to selections from media

16 streams when analyzing, commenting on, reviewing, or selecting portions thereof. A

17 first example thereof might be a biography of a known actor or director, including se-

18 lections of short clips of scenes used for illustrative, scholarly, literary, artistic, political,

19 or social purposes. A second example thereof might be that the user wishes to present a

20 short clip, such as a favorite scene, for presentation to a selected audience (including for

21 example just the user themselves), or as part of a pedagogical exercise (including for ex-

22 ample as a demonstration of acting technique or camera work).

1

2   Both these problems are exacerbated by increases in the number of DVD

3   media providers (whether creators or distributors), and by increases in the number of

4   media streams available to the user. Moreover, both these problems might inhibit de-

5   velopment of a convenient UI (user interface) for selection and presentation of media

6   streams, whether from recorded physical media or downloaded from one or more con-

7   tent servers.

8

9   Accordingly, it would be advantageous to provide an improved technique

10   for video selection and presentation, relatively less subject to problems with known

11   techniques.

12

13   SUMMARY OF THE INVENTION

14

15   The invention provides a method and system capable of selection and

16   presentation of media streams, in which presentation is not substantially limited by any

17   order imposed by the digital content representative of those media streams.

18

19   In one aspect, the invention provides a method and system capable of cre-

20   ating and referencing a bookmark to a location selected within the media stream, not

21   necessarily pre-selected by the creator or distributor of that media stream, and possibly

22   dynamically selected by a recipient of digital content representing that media stream.

1   In addition to referencing the bookmark, the invention provides a user with the capa-

2   bility of starting or restarting presentation from the selected bookmark.

3

4   In one aspect, the invention provides a method and system capable of cre-

5   ating a watchpoint at a location selected within the media stream, or a presentation

6   state otherwise associated with presentation of the media stream, capable of associating

7   with that watchpoint one or more watchpoint triggers (indicating on what conditions

8   the watchpoint is triggered) and one or more watchpoint actions (indicating what ac-

9   tions are taken in response to triggering the watchpoint). For one example, the user

10   might designate a bookmark at the beginning of a selected film clip, a watchpoint trig-

11   ger with the end of that same film clip, and a watchpoint action associated with the

12   watchpoint, which watchpoint action directs a presentation device to return to a pres-

13   entation state it was at before presenting from the bookmark. In this example, the film

14   clip effectively acts as a media element capable of being inserted into another, different,

15   media stream (or more generally, into any other user interface or media presentation,

16   the original user interface or media presentation not necessarily including any original

17   media streams of its own), without involving any other digital content associated with

18   the larger media stream that contains that film clip.

19

20   In one aspect, the invention provides a method and system capable of se-

21   lecting one of a set of such film clips (bookmark-watchpoint pairs) for presentation, in

22   response to a user input, a user preference, a playback device configuration, demo-

1 graphic information about the user or the playback device, or other pertinent informa-

2 tion. For a first example, a one or more DVD's might have a first version of its movie

3 better suited for presentation on a regular television screen, and a second version of its

4 movie better suited for presentation on a widescreen or HDTV television screen (cur-

5 rently, the movie "Shrek" is sometimes marketed with two separate DVD's, one of

6 which includes a widescreen version and one of which includes a narrowscreen ver-

7 sion). For a second example, one or more DVD's might have a first version of its movie

8 better suited for presentation to a mature audience, and a second version of its movie

9 better suited for presentation to a less-mature audience. For a third example, a single

10 DVD might have a set of versions of its movie with selected different plot points or

11 movie endings, for those different audiences or users who prefer the movie to have a

12 happy ending or otherwise. For a fourth example, a single DVD might have a shorter

13 (abridged) and a longer (unabridged) version of the same movie, selectable by the user.

14

15 In one aspect, the invention provides a method and system capable of se-

16 lecting one of a set of such film skips (watchpoint-bookmark pairs), with the effect that

17 a section of a media stream might be skipped, censored, or otherwise edited out, in re-

18 sponse to a user input, a user preference, a playback device configuration, demographic

19 information about the user or the playback device, or other pertinent information.

20

21 In one aspect, the invention provides a method and system capable of

22 testing one or more state variables at such bookmarks or watchpoints, and of taking dif-

1   ferent actions in response to distinct values of those state variables. In one embodiment,

2   the invention provides a user with the capability of designing a sequence of actions

3   (conditional or unconditional), by which selections from media streams might be pre-

4   sented in response to digital content representing those media streams and in response

5   to other information. Such other information might include the scope of a license af-

6   forded to the user, demographic or other metadata about that user, or interactive activ-

7   ity with that user (or more than one such user). Such a sequence of actions might be re-

8   corded, retrieved, transmitted, or received, similar to digital content representing any

9   other type of media stream.

10

11   In one embodiment, the invention might include bookmarks created or

12 edited using one or more techniques or by one or more types of creators. For a first ex-

13 ample, bookmarks might be created in conjunction with the original content, such as for

14 example by an author, creator, distributor, or synchronizer, of the original content. For

15 a second example, bookmarks might be created by a party other than in conjunction

16 with the original content, such as for example by a secondary distributor of the content,

17 a server providing the content to an end-user along with newly-associated metadata, a

18 translator of the original content, such as a person adding subtitles in a second or an al-

19 ternative language or "dubbing" in sound in a second or an alternative, or such as an

20 editor of the movie for a specific purpose, such as for example a purpose suitable for

21 airliner use, for children, or for export to selected countries. For a third example,

22 bookmarks might be created by end-user preferences, either explicit or implicit or some

1   combination or conjunction thereof, such as for example in response to the end-user

2   designating a favorite scene, or such as for example in response to the end-user skip-

3   ping over a disfavored scene, or such as for example in response to preferences implied

4   by demographic information about the end-user. Similar to bookmarks, the invention

5   might also include watchpoints created using one or more techniques or by one or more

6   types of creators, as described above with regard to creation or editing of bookmarks.

7

8   After reading this application, those skilled in the art would recognize that

9   the invention is an enabling technology by which substantial advance is made in the art

10   of media streams and digital content representative thereof. For example, the invention

11   might be used to provide one or more of, or some combination or extension or mixture

12   of, any of the following:

13

14   • Saving selected scenes from movies and requesting playback of those scenes, ei-

15   ther in response to user command, pointers to those scenes, or metadata de-

16   scribing those scenes.

17

18   • Pausing movies during presentation on a first device and requesting playback on

19   a second device, such as for example in response to user command.

20

1   • Assembling a collection of such selected scenes, possibly along with commen-

2   tary, or possibly embedded in another media stream for which those selected

3   scenes are exemplary or illustrative.

4

5   • Assembling a collection of bookmarks or watchpoints, possibly along with com-

6   mentary; maintaining that collection in a database or other metadata; or sending

7   that collection from one device to another.

8

9   • Creating and presenting a demonstration of a home video system, including

10   demonstration of selection and presentation of media streams as part of the

11   demonstration. In one embodiment, the demonstration itself might be interac-

12   tive, and include the capability for the user to select which media streams are se-

13   lected or presented as part of the demonstration itself.

14

15 • Creating and presenting a media stream by which a pseudorandom or random

16   process determines presentation of such selected scenes, possibly in response to

17   other information. In one embodiment, the pseudorandom or random process

18   might select film clips in response to known preferences of the user, thus pro-

19   viding the capability of a film clip "screen saver" or a variant of the MTV chan-

20   nel.

21

1 • Pausing, restarting, and repeating presentation of media streams, even for media

2   for which such functions are not originally supported.

3

4 • Direct access to feature presentations within recorded digital media, without any

5   substantial requirement for navigating via pre-recorded menus or pre-recorded

6   advertising, announcements, or warnings.

7

8 • Direct access to supplements to such feature presentations, or trailers associated

9   with such feature presentations, within recorded digital media, without any sub-

10   stantial requirement for navigating via pre-recorded menus or pre-recorded ad-

11   vertising, announcements, or warnings.

12

13 • Presentation of media streams represented by digital content recorded on multi-

14   ple volumes of digital media, such as for example movies recorded on more than

15   one DVD, without any substantial requirement for the user to intervene at a

16   switching point between those multiple volumes.

17

18 • Performing operations external to presentation in response to the media stream,

19   such as for example turning up room lights at the start of movie credits, dimin-

20   ishing sound volume during commercial breaks, or pausing presentation in re-

21   sponse to aspects of the movie (such as for example at a commercial break in a

22   broadcast movie).

1

2 • Creating and presenting a computer game using individual film clips, either

3 from pre-existing DVD media or newly-created digital content. For example, the

4 computer game might be interactive, or might respond to external information,

5 such as for example a television news feed.

6

7 In one embodiment, the invention includes a representation of a presenta-

8 tion state and a virtual machine state, each of which is updated concurrently with pres-

9 entation of the media stream.

10

11 A bookmark preferably includes a defined presentation state and virtual

12 machine state to which a presenting device might be set, with the effect of providing

13 that presenting device with the capability of presentation beginning at that bookmark.

14 In one embodiment, presentation might instead begin at a closest "entry location" des-

15 ignated by the digital content representing that media stream. In one embodiment, the

16 defined presentation state or virtual machine state might include a known "title num-

17 ber" within DVD media on which is recorded the digital content representing that me-

18 dia stream.

19

20 A watchpoint preferably includes a defined presentation state and virtual

21 machine state, along with one or more associated triggerable actions, with the effect that

22 whenever the presenting device attempts to match its presentation state and virtual ma-

1 chine state with that watchpoint, a first sufficient degree of similarity with the trigger-

2 ing condition (possibly for a first subset of data associated with each such state) would

3 cause the watchpoint to be triggered, and a second sufficient degree of similarity with a

4 conditional choice of action (possibly for a second subset of data associated with each

5 such state) would cause the associated actions would be performed. For example, the

6 presenting device might attempt to match its presentation state and virtual machine

7 state with selected watchpoints after each known frame of the media stream, or at the

8 beginning or end of each subsegment of the media stream designated by the digital

9 content representing that media stream.

10

11   BRIEF DESCRIPTION OF THE DRAWINGS

12

13   Figure 1 shows a block diagram of a system including bookmarks and

14 watchpoints for video selection and presentation.

15

16   Figure 2 shows a process flow diagram of a method including operation of

17 a system including bookmarks and watchpoints for video selection and presentation.

18

19   INCORPORATED DISCLOSURE

20

21   This application claims priority of the following documents, each of which

22 is hereby incorporated by reference as if fully set forth herein.

1

2 • U.S. provisional patent application 60/439,330, filed January 9, 2003, in the name
3   of Shawn NEELY, Lawrence KESTELOOT, Margaret NOVOTNY, Marion
4   BUCHENAU, Sheila FOLEY, and Michael O'NEIL, attorney docket number
5   217.1014.01, titled "User Interface for Video Selection and Display".

6

7 • U.S. patent application 10/418,949, filed April 18, 2003, in the name of Shawn
8   NEELY, Lawrence KESTELOOT, Margaret NOVOTNY, Marion BUCHENAU,
9   Sheila FOLEY, and Michael O'NEIL, attorney docket number 217.1017.01, titled
10   "Guide-Like User Interface for Video Selection and Display".

11

12 • U.S. patent application 10/418,739, filed April 18, 2003, in the name of Shawn
13   NEELY, Lawrence KESTELOOT, Margaret NOVOTNY, Marion BUCHENAU,
14   Sheila FOLEY, and Michael O'NEIL, attorney docket number 217.1018.01, titled
15   "Mosaic-Like User Interface for Video Selection and Display".

16

17 • U.S. provisional patent application 60/488,367, filed July 15, 2003, in the name of
18   Paul RECHSTEINER, Shawn NEELY, Lawrence KESTELOOT, Daniel COLLENS,
19   Robert ZARNKE, Nik GERVAE, Ray DEPAUL, Richard CZEGLEDI, and Kevin
20   HUI, attorney docket number 217.1019.01, titled "Bookmarks and Watchpoints
21   for Selection and Presentation of Media Streams".

22

1   These documents are hereby incorporated by reference as if fully set forth

2   herein, and are sometimes referred to herein as the "incorporated disclosure".

3

4   Inventions described herein can be used in combination or conjunction

5   with technology described in the incorporated disclosure.

6

7   DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

8

9   In the description herein, a preferred embodiment of the invention is de-

10   scribed, including preferred process steps and data structures. Those skilled in the art

11   would realize, after perusal of this application, that embodiments of the invention

12   might be implemented using a variety of other techniques not specifically described,

13   without undue experimentation or further invention, and that such other techniques

14   would be within the scope and spirit of the invention.

15

16   *Lexicography*

17

18   The general meaning of each of these following terms is intended to be il-

19   lustrative and in no way limiting.

20

21   • The phrase "media stream" describes information intended for presentation in a

22   sequence, such as motion pictures including a sequence of frames or fields, or

1   such as audio including a sequence of sounds. As used herein, the phrase

2   "media stream" has a broader meaning than the standard meaning for

3   "streaming media," (of sound and pictures that are transmitted continuously

4   using packets and that start to play before all of the content arrives). Rather, as

5   described herein, there is no particular requirement that "media streams" must

6   be delivered continuously. Also as described herein, media streams can refer to

7   other information for presentation, such as for example animation or sound, as

8   well as to still media, such as for example pictures or illustrations, and also to

9   databases and other collections of information.

10

11   • The phrase "digital content" describes data in a digital format, intended to repre-

12   sent media streams or other information for presentation to an end viewer.

13   "Digital content" is distinguished from packaging information, such as for ex-

14   ample message header information. For the two phrases "digital content" and

15   "media stream," the former describes a selected encoding of the latter, while the

16   latter describes a result of presenting any encoding thereof.

17

18   • The phrase "DVD media content format," and the like, describes a family of en-

19   coding formats including DVD-audio and DVD-video (such as for example used

20   with media including digital video disks or equivalents thereof). DVD media

21   content format is a specific example of one of many possible formats in which

22   digital content might be encoded.

1 • The term "bookmark" describes a reference to a logical location selected within a

2 media stream. In one embodiment, bookmarks are not necessarily pre-selected

3 by the creator or distributor of that media stream, and are possibly dynamically

4 selected by a recipient of digital content representing that media stream. In one

5 embodiment, presentation devices are capable of starting or restarting presenta-

6 tion from a selected bookmark.

7

8 • The term "watchpoint" describes an association of at least one watchpoint trigger

9 and at least one watchpoint action. This has the effect that a watchpoint is capa-

10 ble of being treated as an "IF-THEN" construct, where the watchpoint trigger is

11 the "IF" part of the construct and the watchpoint action is the "THEN" part of

12 the construct. Those one or more watchpoint actions might be conditioned on

13 some other data or state information. For one example, the user might designate

14 a bookmark at the beginning of a selected film clip, and a watchpoint including

15 (1) a watchpoint trigger associated with the end of that same film clip, and (2) a

16 watchpoint action directing a presentation device to return to a presentation state

17 it was at before presenting from the bookmark. In this example, the film clip ef-

18 fectively acts as a media element capable of being inserted into another, different,

19 media stream, without involving any other digital content associated with the

20 larger media stream that contains that film clip.

21

1　　• The phrase "watchpoint action" describes an action to be performed in response

2　　to triggering a watchpoint (when the conditions of the watchpoint trigger occur).

3　　Watchpoint actions might be conditioned on some other data or state informa-

4　　tion.

5

6　　• The phrase "watchpoint trigger" describes a reference to a logical state of a pres-

7　　entation device, such as for example a logical location selected within a media

8　　stream. When that logical state (or any other condition used as a watchpoint

9　　trigger) occurs, the watchpoint is triggered and the watchpoint action part of the

10　　watchpoint is performed.

11

12　　　　The scope and spirit of the invention is not limited to any of these defini-

13　　tions, or to specific examples mentioned therein, but is intended to include the most

14　　general concepts embodied by these and other terms.

15

16　　*System Elements*

17

18　　　　Figure 1 shows a block diagram of a system including bookmarks and

19　　watchpoints for video selection and presentation.

20

21　　　　A system 100, such as for example an end-user system, includes a library

22　　110 or other storage including digital content 111 representing a media stream, such as

1　for example in a DVD media content format, a presentation device 120, and a presenta-

2　tion controller 130.

3

4　　　　In one embodiment, the library 110 might include one or more of: a DVD

5　reader; a disk drive (whether magnetic, optical, magneto-optical, or otherwise); a "juke-

6　box" or other collection of multiple readers for physical media such as DVD's or disk

7　drives; a communication link to a web server, file server, database server, or other

8　server; a broadcast receiver such as a cable modem or satellite link, or any other device

9　or technique having the capability of delivering digital content to the presentation de-

10　vice 120.

11

12　　　　In one embodiment, the presentation controller 130 might include a por-

13　tion, or be included in a portion, of a PVL (personal video library) associated with the

14　system 100. The library 110 might also include a portion, or be included in a portion, of

15　a PVL (personal video library) associated with the system 100. However, after reading

16　this application, those skilled in the art would recognize that in the context of the in-

17　vention, no such limitation is required. One such embodiment is further described in

18　the incorporated disclosure.

19

20　　　　The presentation controller 130 is, in one embodiment, coupled to at least

21　one input device 131, suitable for receiving commands or other information from a user

22　132 associated with the presentation device 120, and at least one output device, which in

1   one embodiment includes a portion of, or is included in a portion of, the presentation

2   device 120 itself. The presentation controller 130 includes a processor, program and

3   data memory, and is capable of receiving those commands or other information, and re-

4   sponding thereto as described herein, with the effect that the user 132 is capable of in-

5   teracting with the presentation controller 130 as described herein.

6

7   There is no particular requirement, in the context of the invention, either

8   (a) that the presentation controller 130 involves an input device 131, or (b) that the pres-

9   entation controller 130 receives commands or other information from a user 132. In al-

10   ternative embodiments, the presentation controller 130 may act in response to a pre-

11   selected set of programming instructions, or in response to a set of sensors not generally

12   considered an input device 131, such as for example a timed program show or a pro-

13   gram show responsive to the presence of people to watch it. In alternative embodi-

14   ments, the presentation controller 130 may act in response to commands or other infor-

15   mation from an operator other than a user 132, such as for example a stage director or

16   performer, or a remote teacher engaged in televised instruction.

17

18   For just one example of such alternative embodiments, the system 100

19   may be devised to make presentations of shows at a demonstration device, a sales ki-

20   osk, or a trade show. In such alternative embodiments, the presentation controller 130

21   might be responsive to a timer to present a continuous loop of the same media stream

22   (or a pseudorandomly or randomly selected sequence of different media streams), or

1 might be responsive to the absence or presence of heat (using an IR sensor), light, or

2 sound to determine the absence or presence of a viewing audience of sufficient size, and

3 in response thereto, might be responsive to the audience and its size to present an

4 automatically selected sequence of media streams.

5

6 As described above, the library 110 includes (or includes access to) digital

7 content 111 representing a media stream, such as for example in a DVD media content

8 format. Typically, the user 132 interacts with a user interface at a selected presentation

9 device 120, with the effect that the user 132 might choose for presentation an episode or

10 show that forms at least a portion of the digital content 111. The presentation device

11 120 interacts with the library 110 to obtain the portion of the digital content 111 repre-

12 senting the media stream for that episode or show. The library 110 sends that portion of

13 the digital content 111 to the presentation device 120, with the effect that the presenta-

14 tion device 120 presents the media stream represented by that portion of the digital

15 content 111 to the user 132.

16

17 After reading this application, those skilled in the art would recognize that

18 specifications for aspects of DVD devices and methods, including DVD-audio, DVD-

19 video, and related specifications, actually support a more interactive method of behav-

20 ior. However, but that any such interactive behavior involves pre-programming that

21 interactive behavior into the digital content 111 before the library 110 (or other storage

22 or communication) receives that digital content 111. There is no substantial provision

1 for the user 132 to create a new interactive behavior, or to use a new interactive behav-

2 ior created after that digital content 111 was originally created.

3

4 The digital content 111 in a DVD media content format includes a se-

5 quence of instructions, each either (a) directing a virtual machine state change, or (b) di-

6 recting presentation of at least a portion of a media stream. In one embodiment, the

7 virtual machine state includes a plurality of registers, at least some of which are read-

8 only and describe the presentation device 120 configuration, while at least some (others)

9 are more general in purpose, such as for example a register storing whether a certain

10 portion of the DVD had already been viewed. In such an embodiment, the virtual ma-

11 chine instructions either (a) alter, update, or otherwise modify virtual machine registers,

12 or (b) direct presentation of at least a next portion of a media stream.

13

14 The presentation device 120 also includes a presentation state, distinct

15 from the virtual machine state, which describes at least some internal state of the pres-

16 entation device 120 as it parses and presents the portion of the media stream repre-

17 sented by the digital content 111. As the digital content 111 is read, parsed, and con-

18 verted to a format with which the presentation device 120 might present the portion of

19 the media stream, the presentation state of the presentation device 120 changes, without

20 necessarily changing the virtual machine state of the presentation device 120.

21

1   The phrase "media stream state" generally describes a complete state, in-

2   cluding both the virtual machine state and the presentation state, of the presentation

3   device 120.

4

5   After reading this application, those skilled in the art would recognize that

6   the virtual machine state can be responsive to the presentation state (although in one

7   embodiment the virtual machine state is unchanged by changes in the presentation

8   state), and that the presentation state can be responsive to the virtual machine state (al-

9   though in one embodiment the presentation state is responsive to the digital content

10   111).

11

12   Watchpoints, including their watchpoint triggers and watchpoint actions,

13   might be conditioned on other state information or input, with the effect that both the

14   virtual machine state and the presentation state might be made responsive to any con-

15   ditions or data those watchpoint triggers or watchpoint actions are able to test. For one

16   example, not intended to be limiting in any way, conditional watchpoint triggers or

17   watchpoint actions might be responsive to information of the following types:

18

19   • hardware or software information relating to the construction, make, model, ori-

20   gin, point of sale, amount of memory, processor speed, or other information re-

21   garding how the presentation device 120 is constructed;

22

1   • demographic information relating to the nature of the user 132, including the

2   user's age, home location, income, VALS evaluation, preferences, or other infor-

3   mation regarding uses made by the user 132 of the presentation device 120, in-

4   cluding for example a current GPS location of the presentation device 120 or of

5   the user 132;

6

7   • dynamic information relating to external events, including for example the pres-

8   ence or absence of other persons near the presentation device 120 (and if those

9   persons are known as other users 132, demographic information relating to their

10   nature, or alternatively, a number of such persons), and including for example

11   the operation of other equipment in the same room, suite, apartment, or building

12   in which the presentation device 120 is located (such as for example, whether a

13   door is opened or closed, whether a telephone rings, whether lights are turned

14   on, a temperature inside or outside, a time of day, a day of the week, a week of

15   the year, whether or not the selected day is or precedes a school holiday, and the

16   like).

17

18   or

19

20   • dynamic information relating to external data, including for example data re-

21   garding news announcements, public events, stock tickers, weather, and the like

22   (any or all of which might be filtered or searched in response to keywords, with

1   the effect that the user 132 is capable of causing the presentation device 120 to re-

2   spond to new announcements involving selected celebrities or types of event,

3   sports events or weather involving a selected city or region, stock tickers re-

4   garding selected companies or industries, and the like);

5

6   *Method of Operation*

7

8   Figure 2 shows a process flow diagram of a method including operation of

9   a system including bookmarks and watchpoints for video selection and presentation.

10

11   A method 200 includes a set of flow points and steps. Although described

12   serially, these flow points and steps of the method 200 can be performed by separate

13   elements in conjunction or in parallel, whether asynchronously or synchronously, in a

14   pipelined manner, or otherwise. There is no particular requirement that the flow points

15   or steps must be performed in the same order as described, except where explicitly so

16   indicated.

17

18   *Creating Bookmarks*

19

20   At a flow point 210A, the method 200 is ready to create a bookmark.

21

1   At a step 211, the method 200 receives information (such as from an end-

2   user or an operator) specifying the location of the bookmark, and any related informa-

3   tion. In one embodiment, that related information might include (a) information relat-

4   ing to the configuration of the presentation device(s) at which presentation from the

5   bookmark is to be specified, (b) information relating to licensing information relating to

6   the media stream of which the bookmark is a part, or (c) other metadata relating to the

7   bookmark, such as for example a title for the bookmark, one or more representative

8   graphics, such as for example thumbnail pictures, associated with the bookmark, a set

9   of configuration information regarding how that thumbnail picture would be presented

10 (or presented in a selected context), or a set of key words associated with the bookmark,

11 with the effect that an end-user or operator might search for one or more of those key

12 words, or edit those key words with the effect of remarking upon the bookmark (for

13 one example, not intended to be limiting in any way, if the bookmark is associated with

14 a time in the media stream at which a great white shark attacks a person, the words

15 "SHARK ATTACK" might be associated with the bookmark, with the effect that an

16 end-user or operator might search for one or more of those words with the effect of

17 finding the shark attack scene).

18

19 In one embodiment, at least some of the following information is included

20 in the information the method 200 receives in this step:

21

1   • A type of entry location (further described below with regard to the next step),

2   such as for example "first play," "top menu," "title menu," "title menu," "end of

3   title," and the like.

4

5   • A title number, such as for example an integer from 1 to 99. In one embodiment,

6   this value is used only for entry locations of type "title menu" or "end of title."

7

8   • A start time in frames, seconds, or other measurement from the beginning of the

9   title. In one embodiment, this value is used only for entry locations of type "title

10   menu."

11

12   • A VTS number, such as for example an integer from 1 to 99. In one embodiment,

13   this value is used only for entry locations of type "title menu."

14

15   • A VTS title number, such as for example an integer from 1 to 99. In one em-

16   bodiment, this value is used only for entry locations of type "title menu."

17

18   At a step 212, the method 200 determines an "entry location" into a media

19   stream at which presentation devices are capable of beginning presentation without

20   substantial chance that state information for the presentation device would be inaccu-

21   rate or incomplete. After reading this application, those skilled in the art of presenta-

22   tion of media streams, including for example media streams recorded on DVD media,

1   would recognize that loading a complete image of the state of an arbitrary presentation

2   device might be unwieldy, and further might have the effect of providing inaccurate or

3   incomplete information to that presentation device if the exact presentation device and

4   its configuration were not known ahead of time. Accordingly, in one embodiment, to

5   perform this step, the method 200 searches for an entry location at or near (such as close

6   before or close after) the specified location of the bookmark.

7

8   In one embodiment, the method 200 recognizes at least some of the fol-

9   lowing types of entry location:

10

11   • A "first play" type of entry location, such as for example what the presentation

12   device will start with when first noting the presence of the digital content. A

13   "first play" type of entry location is known for DVD players capable of present-

14   ing digital content maintained on DVD.

15

16   • A "top menu" type of entry location, such as for example a root menu in a tree of

17   menus accessible by the presentation device and maintained on the digital con-

18   tent representing the media stream.

19

20   • A "title menu" type of entry location, such as for example an entry location indi-

21   cating a start of a selected title maintained on the digital content representing the

22   media stream.

1

2   • A "title" type of entry location, such as for example an entry location indicating a

3   time T after the start of the selected title maintained on the digital content repre-

4   senting the media stream.

5

6   • An "end of title" type of entry location, such as for example an entry location in-

7   dicating the end of a selected title maintained on the digital content representing

8   the media stream.

9

10   For one example, not intended to be limiting in any way, the entry loca-

11   tion might be one such as defined by the DVD specification, also described in J. TAYLOR,

12   DVD DEMYSTIFIED (2nd ed., 2001) (McGraw-Hill: New York) (ISBN 0-07-135026-8). Fur-

13   ther information is also available in a DVD accompanying that book, and sold there-

14   with. For DVD, an entry location is a defined location in the DVD digital content repre-

15   senting a media stream where the presentation device can begin execution (including

16   parsing of the digital content representing the media stream, and presentation of that

17   media stream). For each type of DVD entry location, there is substantially dictated how

18   each of the virtual machine registers are initialized, while configuration registers for the

19   presentation device are substantially untouched. This has the effect that each entry lo-

20   cation is associated with a specific state of the presentation device, which might be fur-

21   ther parameterized by configuration settings for that presentation device. After reading

22   this application, those skilled in the art of presentation of media streams, including for

217.1019.02

1 example media streams recorded on DVD media, would recognize that the set of all

2 possible states for presentation devices that might be specified by entry locations is a

3 relatively small subset of the set of all possible states for presentation devices (specified

4 by entry locations or not).

5

6   At a step 213, the method 200 determines a substantially complete de-

7 scription of a desired state of the presentation device, in response to the information re-

8 ceived in the step 211 and the entry location determined in the step 212. In one em-

9 bodiment, this substantially complete description might include either (a) a substan-

10 tially complete description of the actual desired state of the presentation device, in-

11 cluding configuration information substantially matching the actual presentation de-

12 vice, or (b) a substantially complete description of the entry location, including any

13 further changes in state involved in bringing the presentation device from that entry lo-

14 cation to its desired state, and any configuration information involved in bringing the

15 presentation device to its desired state.

16

17   At a step 214, the method 200 associates the information it determined

18 with the selected bookmark. In one embodiment, the method 200 records that informa-

19 tion in association with the selected bookmark, such as for example in a database of

20 such bookmarks, and maintains that information for later access by an end-user, op-

21 erator, or the presentation device.

22

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1   At a flow point 21oB, the method 200 has created a bookmark, and is

2 ready to either do so again, or to do something else.

3

4   *Beginning Presentation from a Bookmark*

5

6   At a flow point 220A, the method 200 is ready to begin presentation from

7 a designated bookmark.

8

9   At a step 221, the method 200 retrieves information associated with the

10 designated bookmark. In one embodiment, that information is the information de-

11 scribed with regard to the steps in the section beginning at the flow point 210A, "*Creat-*

12 *ing Bookmarks.*"

13

14   At a step 222, the method 200 changes the state of the presentation device

15 in accordance with the information associated with the designated bookmark. As part

16 of this step, for example, not intended to be limiting in any way, if the designated

17 bookmark indicates a selected entry location in the digital content representing the me-

18 dia stream, the method 200 changes the state of the presentation device to substantially

19 equal information associated with that selected entry location. As part of this step, for

20 example, not intended to be limiting in any way, if the designated bookmark indicates

21 any specified configuration information for the presentation device, the method 200

1   changes the state of the presentation device to substantially equal that configuration in-

2   formation associated with the designated bookmark.

3

4   This step has the effect that the presentation device is changed to a state

5   from which it can begin presentation from the designated bookmark, substantially as if

6   the presentation device has reached that designated bookmark in the ordinary course of

7   parsing the digital content associated with the media stream and presenting that media

8   stream.

9

10   At a step 223, the method 200 causes the presentation device to be started

11   with the state set in the previous step, with the effect described in the previous state,

12   that the presentation device can begin presentation from the designated bookmark.

13

14   At a flow point 22oB, the method 200 has begun presentation from a des-

15   ignated bookmark, and is ready to either do so again, or to do something else.

16

17   *Creating Watchpoints*

18

19   At a flow point 230A, the method is ready to create a watchpoint.

20

21   At a step 231, similar to the step 211, the method 200 receives information

22   (such as from an end-user or an operator) specifying the nature of the watchpoint, in-

1   cluding a set of (a) triggering information, including a designated state information for

2   the presentation device with which method can compare with the actual state informa-

3   tion of the presentation device, and (b) consequent actions, including a designated set of

4   actions for the method 200 to take in response to when the watchpoint is triggered.

5

6   In one embodiment, the information specifying the triggering information

7   for the watchpoint includes a set of register values specifying a class of states in which

8   the presentation device might be found. This class of states includes both "presentation

9   state," indicating a state of the presentation of the media stream to an end-user, and

10   "virtual machine state," indicating a state of the virtual machine model of parsing the

11   digital content representing the media stream. These states are herein called a "class of

12   states," as there might be more than one state for the presentation device for which the

13   method 200 will consider that the state of the presentation device matches the triggering

14   information for the watchpoint.

15

16   After reading this application, those skilled in the art would recognize that

17   bookmarks are capable of being treated as very general labels or references to presenta-

18   tion locations or presentation state. Bookmarks might be the target of a transfer of con-

19   trol or change in presentation state, might be stored independently of the media stream

20   they reference, and might be subject to variable interpretation in response to known pa-

21   rameters. For example, a bookmark might point to "the opening scene of Shrek," or a

22   bookmark might point to "the opening scene of the current movie," where "the current

1 movie" is a parameter that might vary in response to what movie is actually being pre-

2 sented at the time.

3

4   After reading this application, those skilled in the art would recognize that

5 watchpoints are capable of being treated as having very general conditional watchpoint

6 triggers and very general conditional watchpoint actions. As noted above, watchpoints

7 have substantial if-then functionality, possibly having conditional watchpoint triggers,

8 conditional watchpoint actions, or both. For a first example, not intended to be limiting

9 in any way, a watchpoint might include a watchpoint trigger and a watchpoint action of

10 the class (user input = X) → (go to bookmark Y). For a second example, not intended to

11 be limiting in any way, a watchpoint might include watchpoint trigger and a watch-

12 point action of the class (presentation state within class X) → (do arbitrary action Y).

13 For a third example, not intended to be limiting in any way, a watchpoint might include

14 watchpoint trigger and a watchpoint action of the class (presentation state within class

15 X1) & (user input = X2) → (go to bookmark Y1, and also do arbitrary action Y2).

16

17   After reading this application, those skilled in the art would also recog-

18 nize that bookmarks and watchpoints are very generally capable of being created, ed-

19 ited, or removed dynamically. All such concepts are within the scope and spirit of the

20 invention, and would be workable using the present disclosure without undue experi-

21 mentation or further invention.

22

1   After reading this application, those skilled in the art would recognize that

2   another distinction can be made between blocking techniques (for example, waiting at

3   each change of presentation state or user inputs to review the new class of presentation

4   state or user inputs, with the effect of determining if a watchpoint has been triggered)

5   and polling techniques (for example, periodically, or in response to an interrupt, re-

6   viewing the presentation state or user inputs to review the new class of presentation

7   state or user inputs, with the effect of determining if a watchpoint has been triggered).

8   All such concepts are within the scope and spirit of the invention, and would be work-

9   able using the present disclosure without undue experimentation or further invention.

10

11   In one embodiment, at least some of the triggering information includes

12   either a class of virtual machine states (such as for example, a set of values that must be

13   satisfied by the virtual machine) or a class of presentation states (such as for example, a

14   set of values that must be satisfied by the virtual machine). For one example, not in-

15   tended to be limiting in any way, the triggering information might specify one or more

16   of the following possible triggers:

17

18   • Presentation information, such as (a) transliterations or transcriptions of sound

19   forming a part of the presentation or media stream, (b) video elements format-

20   ting a part of the presentation or media stream, or (c) metadata included in data

21   streams associated with the presentation or media stream. For example, not in-

22   tended to be limiting in any way, a scene including people shouting the word

1　"shark!" or a scene including a picture of a shark, or a set of narrative metadata

2　indicating the species of sharks shown in the presentation or media stream, could

3　trigger a watchpoint, either each alone or in some combination or conjunction.

4

5　• Text information, such as (a) a title number of the portion of the media stream

6　being presented (including the possibility of starting or ending a selected title or

7　title number), (b) text information appearing in closed caption metadata or sub-

8　title metadata. For one example, not intended to be limiting in any way, text in-

9　formation might include a subtitle using the word "shark," with the effect that

10　sources of text information could trigger a watchpoint, either each alone or in

11　some combination or conjunction.

12

13　• Timing information, such as (a) when a selected amount of time has elapsed from

14　the beginning of presentation, or from the most recent bookmark, or (b) when a

15　selected number of frames have elapsed from the beginning of presentation, or

16　from the most recent bookmark, or (c) some combination or conjunction thereof.

17

18　• User-entry information, such as (a) when an end-user selects a designated button

19　or key on a console, or (b) if the end-user is detected to be absent or present near

20　the presentation device, or (c) some combination or conjunction thereof.

21

1   At a flow point 23oB, the method has created a watchpoint, and is ready

2   to either do so again, or to do something else.

3

4   *Triggering Behavior at a Watchpoint*

5

6   At a flow point 240A, the method 200 is ready to trigger selected behavior

7   at a designated watchpoint.

8

9   At a step 241, performed during presentation of the media stream, the

10   method 200 determines if any of the triggering information, either alone or in combina-

11   tion, triggers the watchpoint. In one embodiment, the watchpoint might include Boo-

12   lean or other logical aggregates of triggering information. For a first example, not in-

13   tended to be limiting in any way, a watchpoint might be triggered by having the word

14   "shark!" appear in both the text information and in the presentation information (such

15   as shouted by an actor). For a second example, not intended to be limiting in any way,

16   a watchpoint might be triggered by having at least two actors from a selected set (such

17   as for example the set {Marylin Monroe, Kim Novak, Geena Davis}) appear on screen

18   concurrently.

19

20   At a step 242, the method 200 marks the watchpoint as being triggered,

21   and retrieves information relating to consequent actions, including (as described above)

1   a designated set of actions for the method 200 to take in response to when the watch-

2   point is triggered.

3

4   In one embodiment, at least some of the consequent actions might include

5   altering some of the virtual machine states or the presentation states (such as for exam-

6   ple altering the order or locus of presentation), or might include actions relating to the

7   home theatre system itself (such as for example altering the house lights, changing the

8   volume, or shutting the system down).

9

10   In one embodiment, the consequent actions of the watchpoint might

11   themselves be conditional on a class of presentation states or virtual machine states of

12   the presentation device 120, with the effect that the watchpoint both (a) conditionally

13   triggers, and (b) conditionally selects consequent actions, in response to (possibly dif-

14   ferent) aspects of the presentation states or virtual machine states of the presentation

15   device 120.

16

17   For some examples, not intended to be limiting in any way, the conse-

18   quent actions of the watchpoint might be conditional on one or more of the following

19   sets of information:

20

21   • The watchpoint actions might be conditional on state information about the

22   presentation of the media stream, such as for example how far into the media

1   stream the presentation has gotten so far, or (for a possibly looping media

2   stream) for how long the presentation has gone on so far, or on which type of

3   presentation device 120 or presentation devices 120 the media stream is being

4   presented on, or how many thereof.

5

6   • The watchpoint actions might be conditional on information input from the user,

7   such as for example a most recent input from the user, an expressed or implicit

8   preference described by the user, a nature of a recent keyword search, metadata

9   search, or video search requested by the user. In some embodiments, the conse-

10 quent actions of the watchpoint might include blocking for user input, and be

11 conditional on the absence or presence thereof, and if present, on the nature of

12 that user input, such as for example a choice made by the user, either explicitly,

13 implicitly, or by default.

14

15 • The watchpoint triggers might include a code for a class of triggeres, or the

16 watchpoint actions might include a code for a class of actions, where either such

17 class is responsive to a parameter. For a first example, a watchpoint action might

18 be of the class (go to bookmark B[n]), where [n] is a value responsive to a user

19 input, or a value computed in response to a set of virtual registers. For a second

20 example, a watchpoint trigger might be of the class (now presenting the begin-

21 ning of this movie), where the value of "this movie" is responsive to the specific

22 media stream being presented at that time. Some exemplary watchpoint trigger

1   classes might include: "now presenting the credits for this movie," or "now pre-

2   senting the end of this movie."

3

4   In one embodiment, the consequent actions of the watchpoint, in combi-

5   nation or conjunction with features of bookmarks, can be combined to enable the fol-

6   lowing features, among others. After reading this application, those skilled in the art

7   would recognize that further concepts and extensions consistent with these features

8   would be workable, that such further concepts and extensions are within the scope and

9   spirit of the invention, and that such further concepts and extensions would not require

10 undue experimentation or further invention.

11

12 • 1. A bookmark can be combined with a watchpoint, with the consequent action

13   of the watchpoint set to return to the locus of presentation before the bookmark

14   was invoked, with the effect that the bookmark-watchpoint section of the media

15   stream can be selected out as an independent element (herein sometimes referred

16   to as a "film clip") for presentation by the presentation device. This feature

17   could be used even if the bookmark and the watchpoint were not located within

18   the same media stream, or even within the same digital content representing a

19   media stream.

20

21 For a first set of examples, not intended to be limiting in any way: (a) After a me-

22   dia stream has already been created and distributed to the public, that first media

1 stream is capable of having a user, or other editor or secondary author, include a

2 pointer to a film clip in a second media stream, with the effect that the media

3 stream can include presentation of the film clip as a subroutine within its own

4 presentation, without involving including a copy of that film clip in the first me-

5 dia stream. (b) After a media stream has already been created and distributed to

6 the public, that first media stream is capable of having a user, or other editor or

7 secondary author, include a set of pointers to more than one such film clip, with

8 the effect that the first media stream provides an encyclopedia of such film clips,

9 again without involving including copies of those film clips in the first media

10 stream. (c) After a media stream has already been created and distributed to the

11 public, that first media stream is capable of having a user, or other editor or sec-

12 ondary author, include a set of commentary on a set of film clips, each element of

13 commentary being associated with that actual film clip, against without involv-

14 ing including copies of those film clips in the first media stream.

15

16 • For a second set of examples, not intended to be limiting in any way: (a) An end-

17 user interface might provide for saving selected scenes from movies and re-

18 questing playback of those scenes, either in response to user command, pointers

19 to those scenes, or metadata describing those scenes. (b) An end-user interface

20 might provide for pausing, restarting, or repeating presentation of all or part of a

21 set of media streams, even for digital content or physical media for which such

22 functions were not originally supported. (c) An end-user interface might provide

1   for direct access to feature presentations within recorded digital media, without

2   any substantial requirement for navigating via pre-recorded menus or pre-

3   recorded advertising, announcements, or warnings. (d) An end-user interface

4   might provide for direct access to supplements to such feature presentations, or

5   trailers associated with such feature presentations, within recorded digital me-

6   dia, without any substantial requirement for navigating via pre-recorded menus

7   or pre-recorded advertising, announcements, or warnings. (e) An end-user inter-

8   face might provide for substantially seamless or smooth presentation of media

9   streams represented by digital content recorded on multiple volumes (or other

10   multiple elements) of digital media, such as for example movies recorded on

11   more than one DVD, without any substantial requirement for the user to inter-

12   vene at a switching point between those multiple volumes.

13

14   • 2. A bookmark can be combined with a watchpoint, with consequent action of

15   the watchpoint set to return to bookmark, with the effect that the bookmark-

16   watchpoint section of the media stream can be selected out as an independent

17   film clip to be repeated, either (a) for a selected duration, (b) for a selected num-

18   ber of repeats, (c) until some user action is taken, or (d) some other conditional

19   ending condition.

20

21   • For a first set of examples, not intended to be limiting in any way: (a) A first me-

22   dia stream intended to simulate an arcade game can include a pointer to a re-

1   peating film clip of that arcade game in "attract mode." (b) An arcade game

2   could be made interactive, with end-user actions or commands being incorpo-

3   rated into conditional triggers for watchpoints, with the effect that the end-user

4   could be presented with a substantially continuous media stream, with that sub-

5   stantially continuous media stream being in fact dynamically generated in re-

6   sponse to end-user actions or commands. (c) A media stream of any kind, such

7   as for example an arcade game or a computer game, an interactive movie, or

8   other media stream, could include a media stream by which a selected process

9   determines presentation of such selected film clips. The selected process could

10   be responsive to (i) a pseudorandom or random effect, (ii) demographic or other

11   metadata about the end-user, (iii) known preferences of the end-user, whether

12   stated explicitly or inferred from past end-user choices, or (iv) collaborative fil-

13   tering or similar known techniques. This could have the effect of providing the

14   capability of a film clip "screen saver" or a variant of the MTV channel. (d) A

15   media stream of any kind, such as for example an arcade game or a computer

16   game or , an interactive movie, or other media stream, could include a media

17   stream using individual film clips, either from pre-existing DVD media or newly-

18   created digital content. For example, a computer game might be interactive, or

19   might respond to external information, such as for example television news

20   feeds.

21

1   • For a second set of examples, not intended to be limiting in any way: (a) A first

2   media stream intended to simulate a movie can include a pointer to a repeating

3   film clip of a trailer or a sequence of key scenes from that movie, again without

4   involving including a copy of that film clip in the first media stream. (b) A me-

5   dia stream associated with a set of movies can contain a pointer for at least some

6   of those movies to a repeating film clip for presentation with a user interface for

7   selecting one or more of those movies for presentation, again without involving

8   including a copy of that film clip in the first media stream.

9

10   • For a third set of examples, not intended to be limiting in any way: (a) A first

11   media stream intended to represent a demonstration or training film can include

12   a pointer to a repeating film clip of an element to be demonstrated or trained. (b)

13   One specific example of this includes a first media stream intended to represent a

14   demonstration of setting up a home movie theatre as described in embodiments

15   described herein and in the incorporated disclosures. (c) A demonstration or

16   training film could be interactive, with user commands being incorporated into

17   conditional triggers for the watchpoints, with the effect that the end-user could

18   be presented with a set of choices, either to demonstrate or simulate a "real life"

19   circumstance, or to present a video formatted interactive quiz.

20

21   • 3. A watchpoint could be combined with performing operations external to

22   presentation in response to the media stream, such as for example turning up

1   room lights at the start of movie credits, diminishing sound volume during

2   commercial breaks, or pausing presentation in response to an incoming tele-

3   phone call.

4

5 • Generally, a bookmark or a watchpoint could be combined with generalized de-

6   tection of state for any manner of device whose state is available to the presenta-

7   tion controller 130, and could be combined with generalized alteration or editing

8   of state for any manner of device whose state can be changed (or requested to be

9   changed, such as by request to a server device controlling that device) by the

10   presentation controller 130.

11

12 • For a first set of examples, not intended to be limiting in any way: Devices whose

13   state could trigger a watchpoint might include telephone calls (beginning, end-

14   ing, lasting beyond a selected time, or having more than a selected volume),

15   internet connections (beginning or ending, such as for example instant messag-

16   ing, email, or file transfer), internet state (such as for example changes to selected

17   monitored web sites or RSS feeds), home appliance detectors, such as for exam-

18   ple doorbells, motion detectors, intrusion alarms, heat sensors, door or window

19   sensors, and power usage detectors), vehicle status detectors for presentation de-

20   vices 120 installed on vehicles (such as airplanes, automobiles, buses, ships or

21   trucks) including the possibility of controllers for those vehicles, GPS detectors

22   for location or velocity of those vehicles, and the like. In the case of vehicles, de-

1 vices whose state could trigger a watchpoint might include sensors relating to

2 the vehicle, such as for example incoming audio or video sensors, or incoming

3 radio signals on selected frequencies (such as for example an aircraft control

4 tower or an emergency signaling frequency).

5

6 • For a second set of examples, not intended to be limiting in any way: Devices

7 whose state could be altered or edited by the presentation controller 130 might

8 include telephone calls (such as for example answering or initiating an auto-

9 mated telephone call in response to a selected change in state, such as for exam-

10 ple automatically calling a parent if an X-rated movie is selected for presentation,

11 or if a movie is selected for presentation after 11:30 pm), internet connections

12 (such as for example sending an FTP log of all movies selected for presentation,

13 and how far into the movie the presentation proceeded, possibly after requesting

14 a credit card number from the end-user), presentation device controls (such as

15 for example controlling the volume of the presentation device 120, or even

16 blanking the screen or turning off the presentation device 120 in response to a

17 triggering event), home appliance controls (such as for example turning up the

18 house lights and turning on a radio station at low volume, in response to the end

19 of a movie), vehicle controls (such as for example presenting an airline safety

20 video to passengers in response to an airplane reaching a selected altitude, or

21 switching DVD players from region 1 to region 2 in response to a GPS detector,

1   or switching presentation options from the English language to the French lan-

2   guage in response to a selected location within the English Channel.

3

4   At a step 243, the method 200 performs the consequent actions, including

5   (as described above) a designated set of actions for the method 200 to take in response

6   to when the watchpoint is triggered. As described above, the consequent actions might

7   include transfer of a locus of presentation to a selected bookmark.

8

9   At a flow point 24oB, the method 200 has triggered selected behavior at a

10   designated watchpoint, and is ready to either do so again, or to do something else.

11

12   TECHNICAL APPENDIX

13

14   A Technical Appendix is submitted with this application and hereby

15   made a part of this application. The Technical Appendix, and all references cited

16   therein, are hereby incorporated by reference as if fully set forth herein.

17

18   At least the following documents are part of the technical appendix:

19

20   • "Automatic Masking" (Revision 5, 2003-08-07).

21

22   "DVD Bookmarks" (Revision 4, 2003-05-11).

1

2   *Alternative Embodiments*

3

4   Although preferred embodiments are disclosed herein, many variations

5   are possible which remain within the concept, scope, and spirit of the invention. These

6   variations would become clear to those skilled in the art after perusal of this applica-

7   tion.

8

9   •   The invention is not restricted to movies, but is also applicable to other media

10   streams, such as for example animation or sound, as well as to still media, such

11   as for example pictures or illustrations, and to databases and other collections of

12   information.

13

14   Those skilled in the art will recognize, after perusal of this application,

15   that these alternative embodiments are illustrative and in no way limiting.

1   CLAIMS

2

3   1.   A method, including steps of

4   associating a bookmark with a media stream;

5   associating a watchpoint with that media stream and with that bookmark;

6   whereby a tuple including the bookmark and the watchpoint designates at

7   least one film clip, the film clip including at least a portion of a media stream capable of

8   being presented.

9

10   2.   A method as in claim 1, wherein that watchpoint includes a watch-

11   point action responsive to a feature of a presentation device on which the media stream

12   is capable of being presented.

13

14   3.   A method as in claim 1, wherein

15   that watchpoint includes a watchpoint trigger and a watchpoint action, at

16   least one of which is associated with a first presentation device parameter, and at least

17   one of which is associated with a second presentation device parameter;

18   whereby performance of that media stream in association with that film

19   clip includes a comparison of that first presentation device parameter with that second

20   presentation device parameter.

21

22   4.   A method as in claim 1, wherein that watchpoint includes a watch-

1 point trigger responsive to a feature of a presentation device on which the media stream

2 is capable of being presented.

3

4 5.   A method as in claim 1, wherein

5 that watchpoint includes, associated with a parameter of a presentation

6 device, at least one of: a watchpoint trigger, a watchpoint action;

7 whereby performance of that media stream in association with that film

8 clip includes a substantial comparison with that parameter of the presentation device.

9

10 6.   A method as in claim 1, including steps of

11 associating at least one pair of those film clips with a portion of a media

12 stream capable of being skipped;

13 whereby presentation of that media stream in association with that pair of

14 film clips does not include presentation of that portion capable of being skipped.

15

16 7.   A method as in claim 6, wherein that portion capable of being

17 skipped includes at least one of: a censored portion of that media stream, a sex scene, a

18 violent scene, an advertisement, an answer associated with a game show question, an

19 answer associated with a question presented in associated with that media stream, an

20 objectionable scene.

21

22 8.   A method as in claim 1, including steps of

1   encoding a set of such film clips; and

2   sending that encoding to a device other than one performing those steps

3 of encoding.

4

5   9.   A method as in claim 8, including steps of

6   determining a set of licenses available to a user; and

7   presenting selected ones of such film clips in response to that encoding

8 and in response to that set of licenses;

9   whereby only ones of such film clips for which the user has a license are

10 presented.

11

12   10.   A method as in claim 8, wherein those steps of sending that en-

13 coding include writing that encoding to a physical medium in association with the me-

14 dia stream.

15

16   11.   A method as in claim 1, including steps of maintaining a set of such

17 film clips, substantially each of which is associated with a metadata element, the associ-

18 ated metadata element including at least one of: closed-captioning information, speech-

19 recognition information, subtitle information, video-recognition information.

20

21   12.   A method as in claim 11, including steps of

22   receiving a request for a subset of such film clips; and

1   sending an encoding of that subset in response to that request.

2

3   13.   A method as in claim 11, including steps of

4   searching that set of such film clips; and

5   generating a subset of such film clips in response to those steps of search-

6   ing.

7

8   14.   A method as in claim 1, wherein

9   that watchpoint is associated with a first presentation device; and

10   that bookmark is associated with a second presentation device;

11   whereby performance of that media stream in association with that film

12 clip includes a substantially seamless transfer from that first presentation device to that

13 second presentation device.

14

15   15.   A method as in claim 14, including a substantial pause included in

16 that seamless transfer.

17

18   16.   A method, including steps of

19   associating a bookmark with a media stream;

20   associating a watchpoint with that media stream and with that bookmark;

21   whereby a tuple including the bookmark and the watchpoint designates at

22 least one film skip, the film skip including at least a jump from a first portion of a first

1 media stream to a second portion of a second media stream, the first media stream and

2 the second media stream being either the same media stream or different media

3 streams.

4

5   17.   A method, including steps of

6   associating a bookmark with a media stream;

7   associating a watchpoint with that media stream and with that bookmark;

8   whereby a tuple including the bookmark and the watchpoint designates at

9 least one film skip, the film skip including at least a portion of a media stream capable

10 of being skipped;

11   whereby presentation of that media stream in association with that film

12 skip does not include presentation of that portion capable of being skipped.

13

14   18.   A method as in claim 17, including steps of

15   associating a substantial pause with at least one of those film skips.

16

17   19.   A method as in claim 17, including steps of

18   associating a substantial pause with at least one of those film skips; and

19   waiting for a user action in response to that pause.

20

21   20.   A method as in claim 17, including steps of

22   associating at least one of those film skips with an end of a first set of

1 digital content and a beginning of a second set of digital content;

2 whereby presentation of a media stream associated with that first set of

3 digital content and that second set of digital content continues substantially seamlessly

4 across that film skip.

5

6 21. A method as in claim 17, including steps of

7 encoding a set of such film skips; and

8 sending that encoding to a device other than one performing those steps

9 of encoding.

10

11 22. A method as in claim 17, wherein that portion capable of being

12 skipped includes at least one of: a censored portion of that media stream, a sex scene, a

13 violent scene, an advertisement, an answer associated with a game show question, an

14 answer associated with a question presented in associated with that media stream, an

15 objectionable scene.

16

17 23. A method as in claim 17, wherein the film skip includes at least a

18 jump from a first portion of the media stream to a portion of a second media stream.

19

20 24. A method as in claim 17, wherein the film skip includes at least a

21 jump from a first portion of the media stream to a second portion of the media stream.

22

1   25.   A method as in claim 17, including steps of

2   associating a substantial pause with at least one of those film skips;

3   waiting for a user action in response to that pause; and

4   taking an action conditionally in response to that user action;

5   whereby that action includes at least one of: comparing that user action

6   against a designated possible user action, determining a move in a game in response to

7   that user action, determining whether that user action is a correct or incorrect answer to

8   a question, selecting a media stream for presentation in response to that user action,

9   stopping presentation of media streams in response to that user action.

10

11   26.   A method as in claim 25, including steps of

12   maintaining a score associated with that user action.

13

14   27.   A method as in claim 25, wherein at least one of those actions in-

15   cludes adjusting house lights in response to a point associated with a set of credits for a

16   media stream.

17

18   28.   A method as in claim 17, including steps of

19   associating at least one of those film skips with a portion of a media

20   stream capable of being skipped;

21   whereby presentation of that media stream in association with that film

22   skip does not include presentation of that portion capable of being skipped.

1

2   29.   A method as in claim 28, wherein that portion capable of being

3 skipped includes at least one of: a censored portion of that media stream, a sex scene, a

4 violent scene, an advertisement, an answer associated with a game show question, an

5 answer associated with a question presented in associated with that media stream, an

6 objectionable scene.

7

8   30.   A method as in claim 17, including steps of

9   associating at least one of those film skips with digital content included in

10 a first medium and with digital content included in a second medium;

11   whereby presentation of a media stream associated with that first medium

12 and that second medium continues substantially seamlessly across that film skip.

13

14   31.   A method as in claim 30, wherein that media stream includes a

15 movie encoded on multiple physical volumes of media.

16

17   32.   A method, including steps of

18   associating a set of bookmarks and a substantially corresponding set of

19 watchpoints with a media stream, whereby the bookmarks and watchpoints designate a

20 substantially corresponding set of film clips, substantially each film clip including at

21 least a portion of a media stream capable of being presented; and

22   presenting that set of film clips in association with a plurality of presenta-

1   tion devices;

2   whereby a user is able to compare those presentation devices in associa-

3   tion with substantially each film clip.

4

5   33.   A method as in claim 32, including steps of offering those presen-

6   tation devices for sale or lease.

7

8   34.   A method as in claim 32, including steps of presenting at least some

9   state information associated with each of a plurality of combinations of film clips and

10   presentation devices.

11

12   35.   A method as in claim 32, including steps of substantially seamlessly

13   transferring performance of at least one of those film clips among that plurality of pres-

14   entation devices;

15   whereby a user is able to compare presentation quality of that film clip

16   substantially as presentation is transferred among presentation devices.

17

18   36.   A method as in claim 32, including steps of substantially seamlessly

19   transferring performance of at least one of those film clips from a first presentation de-

20   vice to a second presentation device and back from that second presentation device to

21   that first presentation device;

22   whereby a user is able to compare presentation quality of that film clip

1   substantially as presentation is transferred between that that first presentation device to

2   that second presentation device.

3

4   37.   A method, including steps of

5   sending a media stream to a first recipient;

6   creating a bookmark into that media stream at that first recipient, the

7   bookmark being not pre-selected by a the creator or distributor of that media stream;

8   sending that media stream and that bookmark to a second recipient;

9   dynamically selecting that bookmark at that second recipient; and

10   presenting that media stream beginning at a point designated by that

11   bookmark.

12

13   38.   A method as in claim 37,

14   including at least a second such bookmark, whereby there is a plurality of

15   bookmarks each capable of being dynamically selected; and

16   wherein

17   a first set of those plurality of bookmarks is associated with a first desig-

18   nating identifier; and

19   a second set of those plurality of bookmarks is associated with a second

20   designating identifier.

21

22   39.   A method as in claim 38, including steps of searching among that

1   first designating identifier and that second designating identifier for selected text.

2

3   40.   A method as in claim 38, including steps of

4   selecting among that first designating identifier and that second desig-

5   nating identifier; and

6   presenting at least a portion of that media stream in response to a book-

7   mark found in response to those steps of searching.

8

9   41.   A method as in claim 38, including steps of

10   selecting among that first designating identifier and that second desig-

11   nating identifier; and

12   presenting a set of portions of that media stream in response to a set of

13   bookmarks found in response to those steps of searching;

14   whereby substantially all portions of that media stream designated by

15   bookmarks associated with a selected designating identifier are presented in response

16   to those steps of selecting.

17

18   42.   A method as in claim 38, wherein that first designating identifier

19   includes information about that first set.

20

21   43.   A method, including steps of

22   creating a watchpoint including a description of at least one of: a presen-

1   tation state of a device associated with a media stream, a virtual machine state of a de-

2   vice associated with that media stream, a state of a device other than a presentation de-

3   vice associated with that media stream, another state associated with presentation of

4   that media stream; and

5   associating one or more actions with that watchpoint;

6   whereby when said presentation state or other state is reached, those one

7   or more actions are performed with regard to that media stream.

8

9   44.   A method as in claim 43,

10   wherein one of those actions includes directing a presentation device to go

11   to a bookmark indicating a different presentation state associated with a beginning of a

12   film clip from that media stream;

13   whereby the combination of the bookmark and the watchpoint enable that

14   film clip to be presented again.

15

16   45.   A method as in claim 37, including steps of

17   testing one or more state variables at a selected watchpoint; and

18   performing an action associated with one of the conditional triggers asso-

19   ciated with that watchpoint, in response to a result of the steps of testing.

20

21   46.   A method as in claim 45,

22   including steps of polling more than one watchpoint; and

1   wherein the steps of testing are performed in response to a result of the

2   steps of polling.

3

4   47.   A method as in claim 45, wherein that action includes a sequence of

5   conditional or unconditional instructions.

6

7   48.   A method as in claim 45, wherein that action includes a sequence of

8   instructions capable of being recorded, retrieved, sent, or received.

9

10   49.   A method as in claim 45, wherein that action includes presenting

11   one or more selections from designated media streams, in response to information other

12   than found in digital content representing those designated media streams.

13

14   50.   A method as in claim 49, wherein that information includes at least

15   one of: a license afforded to the user, a set of demographic or other metadata about that

16   user, or a set of information gleaned from interactive activity with that user or more

17   than one such user.

18

19   51.   A method as in claim 43,

20   wherein one of those actions includes directing a presentation device to go

21   to a bookmark indicating a different presentation state associated with presentation of

22   that media stream;

1   whereby the combination of the bookmark and the watchpoint enable a

2   portion of that media stream to be presented as an film clip capable of being inserted

3   into a distinct user presentation.

4

5   52.   A method as in claim 51, including steps of presenting one of a set

6   of such film clips in response to at least one of: a configuration of a presentation device,

7   a user input, a user preference, a set of demographic information about that user or that

8   presentation device.

9

10   53.   A method as in claim 51, wherein that distinct user presentation

11   includes at least one of: a media presentation, a media stream, a user interface, a user

12   presentation received from a source device, a user presentation recorded on physical

13   media.

14

15   54.   A method as in claim 51, including steps of selecting one of a set of

16   media streams each designated by at least one such bookmark.

17

18   55.   A method as in claim 54, wherein a set of associated physical media

19   includes a first media stream suited for presentation on a first presentation device, and

20   a second media stream suited for presentation on a second presentation device.

21

22   56.   A method as in claim 54, wherein a set of associated physical media

1 includes a first media stream suited for presentation to a set of users having a first

2 demographic, and a second media stream suited for presentation to a set of users hav-

3 ing a second demographic.

4

5   57.   A method as in claim 54, wherein a set of associated physical media

6 includes a plurality of media streams each identifiable or selectable in response to at

7 least one such bookmark.

8

9   58.   A method as in claim 54,

10   wherein a set of associated physical media includes a set of media streams

11 differing in length, and

12   including steps of selecting one such media stream for presentation.

13

14   59.   A method as in claim 54,

15   wherein a set of associated physical media includes a set of media streams

16 differing in storyline, and

17   including steps of selecting one such media stream for presentation.

18

19   60.   A method, including steps of

20   associating one or more actions with a watchpoint, that watchpoint in-

21 cluding at least one of: a presentation state of a presentation device, a virtual machine

22 state of that presentation device, a state of a device other than that presentation device;

1   and

2   detecting at least one of those states; and

3   performing at least one of those actions in response to the steps of detect-

4   ing.

5

6   61.   A method as in claim 60, wherein at least one of those actions in-

7   cludes a conditional action, that conditional action being responsive to at least one of:

8   configuration or status information for a presentation device, demographic or license

9   information for a user, interaction with a user or user interface, metadata available to a

10   presentation device or other substantially local device.

11

12   62.   A method as in claim 60, wherein at least one of those actions in-

13   cludes steps of creating, deleting, editing, or otherwise altering, a bookmark or a

14   watchpoint.

15

16   63.   A method as in claim 60, wherein at least one of those actions in-

17   cludes steps of: designating a bookmark for execution for that presentation device or a

18   different presentation device, setting a new location at which to begin presentation for

19   that presentation device or a different presentation device, setting a new presentation

20   state for that presentation device or a different presentation device, setting a new virtual

21   machine state for that presentation device or a different presentation device.

22

1   64.   A method as in claim 60, wherein at least one of those actions is re-

2   sponsive to an explicit or implicit user preference.

3

4   65.   A method as in claim 60, wherein at least one of those actions in-

5   cludes adjusting house lights in response to a point associated with a set of credits for a

6   media stream.

7

8   66.   A method as in claim 60, wherein at least one of those actions in-

9   cludes a sequence of sub-actions.

10

11   67.   A method as in claim 66, wherein that sequence of sub-actions in-

12   cludes steps of maintaining at least some state information between sub-actions.

13

14   68.   A method as in claim 60, wherein at least one of those actions in-

15   cludes steps of selecting among at least a first media stream and a second media stream

16   for presentation.

17

18   69.   A method as in claim 68, wherein that first media stream and that

19   second media stream differ in at least one configuration parameter associated with a

20   presentation device.

21

22   70.   A method as in claim 68, wherein that first media stream and that

1   second media stream differ in at least one of: demographic grouping of intended audi-

2   ence, maturity level of intended audience, movie or television rating.

3

4   71.   A method as in claim 68, wherein that first media stream and that

5   second media stream differ in that the first media stream has a different running time

6   from the second media stream.

7

8   72.   A method as in claim 68, wherein that first media stream and that

9   second media stream differ in that the first media stream includes at least one spoken

10   language substantially absent from the second media stream.

11

12   73.   A method as in claim 68, wherein that first media stream and that

13   second media stream differ in that the first media stream includes at least one scene

14   substantially absent from the second media stream.

15

16   74.   A method as in claim 73, wherein that at least one scene includes at

17   least one of: an advertisement, an adult-oriented scene, an alternative plot point, an al-

18   ternative ending, an alternative style for a selected set of scenes, an alternative set of

19   actors for a selected set of scenes.

20

21   75.   A method, including steps of

22   presenting a set of media streams, wherein those media streams include a

1 representation by digital content, wherein that digital content includes a selected di-

2 rected graph of presentation for those media streams, in which at least some of the me-

3 dia streams are represented by vertices in that directed graph;

4 wherein the steps of presenting include presentation of media streams

5 from that set of media streams in an order other than indicated by that directed graph.

6

7 76. A method as in claim 75, wherein

8 that digital content includes a set of selectable menu elements; and

9 at least some of those menu elements are represented by edges in that di-

10 rected graph.

11

12 77. A method as in claim 75, wherein

13 that digital content includes a set of selectable menu elements; and

14 that order other than indicated by that directed graph includes at least one

15 vertex representing a media element or at least one edge representing a transition to a

16 media element, not representing any of those menu elements.

17

18 78. A method as in claim 75, including steps of

19 encoding, at a first device, that order other than indicated by that directed

20 graph; and

21 sending that encoding to a device other than that first device.

22

1   79.   A method as in claim 78, including steps of

2   generating a package including that encoding and a license to at least

3   some of that digital content; and

4   sending that package to a device not already having both that encoding

5   and that license.

6

7   80.   A method as in claim 78, including steps of

8   generating a package including that encoding and at least some of that

9   digital content; and

10   sending that package to a device not already having both that encoding

11   and that digital content.

12

13   81.   A method as in claim 78, including steps of sending that encoding

14   to a device missing a copy of at least some of that digital content.

15

16   82.   A method as in claim 78, including steps of sending that encoding

17   to a plurality of devices.

18

19   83.   A method as in claim 75, wherein

20   that directed graph includes at least a first directed graph received in as-

21   sociation with that digital content; and

22   that order other than indicated by that first directed graph includes at

1   least a second directed graph designated independently of the first directed graph.

2

3   84.   A method as in claim 83, including steps of receiving that digital

4   content from media including that first directed graph.

5

6   85.   A method as in claim 83, including steps of

7   receiving those media elements of that digital content from a first device;

8   receiving that first directed graph from a second device, the second device

9   being other than the first device.

10

11   86.   A method as in claim 83, including steps of

12   receiving that first directed graph;

13   creating a bookmark to a location not referenced by that first directed

14   graph; and

15   designating a second directed graph referencing that bookmark.

16

17   87.   A method as in claim 86, wherein the steps of creating include steps

18   of identifying a virtual machine state or a presentation state associated with that book-

19   mark.

20

21   88.   A method as in claim 86, wherein the steps of creating include steps

22   of identifying that location substantially dynamically in response to that digital content.

1

2   89.   A method as in claim 86, wherein steps of receiving that digital

3   content include the steps of receiving that first directed graph.

4

5   90.   A method as in claim 86, wherein that second directed graph in-

6   cludes a section of that media stream presentable as an independent film clip.

7

8   91.   A method as in claim 86, wherein that second directed graph in-

9   cludes a section of that media stream presentable in a substantially repeatable loop.

10

11   92.   A method as in claim 86, wherein

12   that second directed graph is performed in response to at least one condi-

13   tion; and

14   the steps of designating include steps of selecting that at least one condi-

15   tion.

16

17   93.   A method as in claim 86, wherein that second directed graph is re-

18   sponsive to a substantially dynamic condition associated with a presentation device.

19

20   94.   A method as in claim 93, wherein that substantially dynamic con-

21   dition includes at least one of: a set of demographic information about a user, an explicit

22   user preference, an implied user preference, a status of a device other than that presen-

1 tation device, a status of a second presentation device, a user command or instruction.

2

3 95. A method as in claim 75, wherein

4 that set of media streams includes a set of more than one film clip; and

5 that order other than indicated by that directed graph includes an arbi-

6 trary ordering of film clips among that set, that arbitrary ordering being selected by an

7 end-user after publication of that set of media streams.

8

9 96. A method as in claim 95, including additional information or com-

10 mentary associated with at least one of: that at least one film clip, that order other than

11 indicated by that directed graph;

12 wherein that metadata includes at least one of: audio elements, graphic

13 elements, text elements, video elements.

14

15 97. A method as in claim 95, including steps of concurrently presenting

16 a plurality of those film clips in association with a user interface capable of allowing the

17 user to select at least one of those film clips for download, presentation, or purchase;

18 wherein those steps of concurrently presenting are responsive to an end-

19 user after publication of that set of media streams.

20

21 98. A method as in claim 95, including steps of concurrently presenting

22 a plurality of those film clips in response to interaction by a user with that order other

1 than indicated by that directed graph;

2 wherein those steps of concurrently presenting are responsive to an end-

3 user after publication of that set of media streams.

4

5 99. A method as in claim 95, including steps of concurrently presenting

6 a plurality of those film clips in response to that order other than indicated by that di-

7 rected graph;

8 wherein those steps of concurrently presenting are responsive to an end-

9 user after publication of that set of media streams.

10

11 100. A method as in claim 95, including steps of downloading or pur-

12 chasing digital content or licenses in response to interaction by a user with that order

13 other than indicated by that directed graph;

14 wherein those steps of downloading or purchasing are responsive to an

15 end-user after publication of that set of media streams.

16

17 101. A method as in claim 95, including steps of downloading or pur-

18 chasing digital content or licenses in response to that order other than indicated by that

19 directed graph;

20 wherein those steps of downloading or purchasing are responsive to an

21 end-user after publication of that set of media streams.

22

1   102. A method as in claim 95, including steps of searching at least one

2   of: that at least one film clip, that order other than indicated by that directed graph, in

3   response to, included therein, at least one of: audio elements, graphic elements, text

4   elements, video elements.

5

6   103. A method as in claim 95, including steps of searching at least one

7   of: that at least one film clip, that order other than indicated by that directed graph, in

8   response to, included in that at least one film clip, at least one of: information about ac-

9   tors or directors associated with that at least one film clip.

10

11   104. A method as in claim 95, including steps of searching at least one

12   of: that at least one film clip, that order other than indicated by that directed graph, in

13   response to, included in that at least one film clip, at least one of: information about

14   camera technique, color, content, associated with that at least one film clip.

15

16   105. A method as in claim 95, including metadata associated with at

17   least one of: that at least one film clip, that order other than indicated by that directed

18   graph.

19

20   106. A method as in claim 105, including steps of searching at least one

21   of: that at least one film clip, that order other than indicated by that directed graph, in

22   response to that metadata.

1

2   107.   A method as in claim 105,

3   including steps of searching at least one of: that at least one film clip, that

4 order other than indicated by that directed graph, in response to that metadata;

5   wherein that metadata includes at least one of: audio elements, graphic

6 elements, text elements, video elements.

7

8   108.   A method as in claim 95, including steps of interacting with a user

9 dynamically presenting a sequence of those film clips in response to interaction with a

10 user.

11

12   109.   A method as in claim 108, wherein those steps of interacting in-

13 clude a teaching technique.

14

15   110.   A method as in claim 108, wherein those steps of interacting in-

16 clude a presentation having artistic, educational, literary, political, or social, elements.

17

18   111.   A method as in claim 108, wherein those steps of interacting in-

19 clude a video game.

20

21   112.   A method as in claim 108, wherein those steps of interacting in-

22 clude information relating to setup of a device or of a home video system.

1   <u>Bookmarks and Watchpoints for Video Selection and Presentation</u>

2   Paul RECHSTEINER / Shawn NEELY / Lawrence KESTELOOT / Michael MALCOLM

3   / Stephen WATSON

4

5   ABSTRACT OF THE DISCLOSURE

6

7   Selection and presentation of media streams, in which presentation is not

8   limited by order imposed by the digital content representative of those media streams,

9   in response to bookmarks and watchpoints settable and usable by a user. Bookmarks

10   reference a location within the media stream, not necessarily pre-selected and possibly

11   dynamically selected, in which a presentation can be started or restarted therefrom.

12   Watchpoints reference a location within the media stream, or a presentation state for the

13   media stream, in which an action can be triggered thereby. Bookmarks and watch-

14   points provide a general technique for presenting selections from media streams in re-

15   sponse to metadata.

Title: Bookmarks and Watchpoints for
           Selection and Presentation of Media
           Streams
Inventor: Rechsteiner
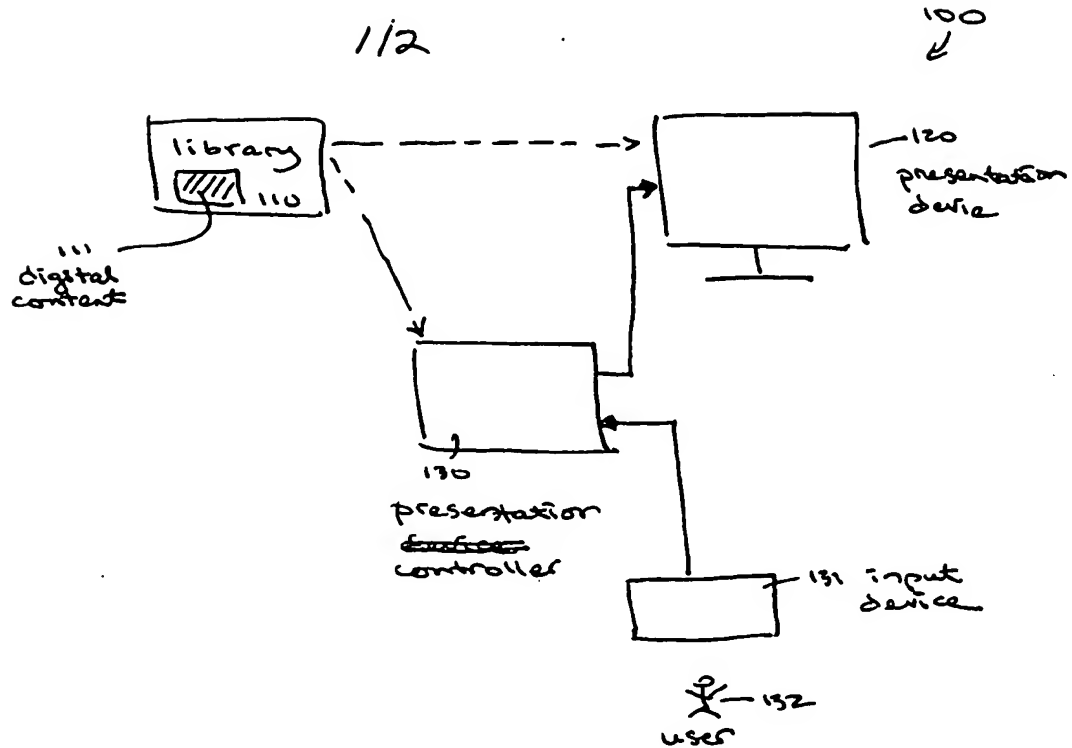Docket: 217.1019.02
Sheet: 1 of 2

1/2

100

library
110

111
digital
content

120
presentation
device

130
presentation
~~interface~~
controller

131 input
device

132
user

figure 1.

Title: Bookmarks and Watchpoints for
           Selection and Presentation of Media
           Streams
Inventor: Rechsteiner
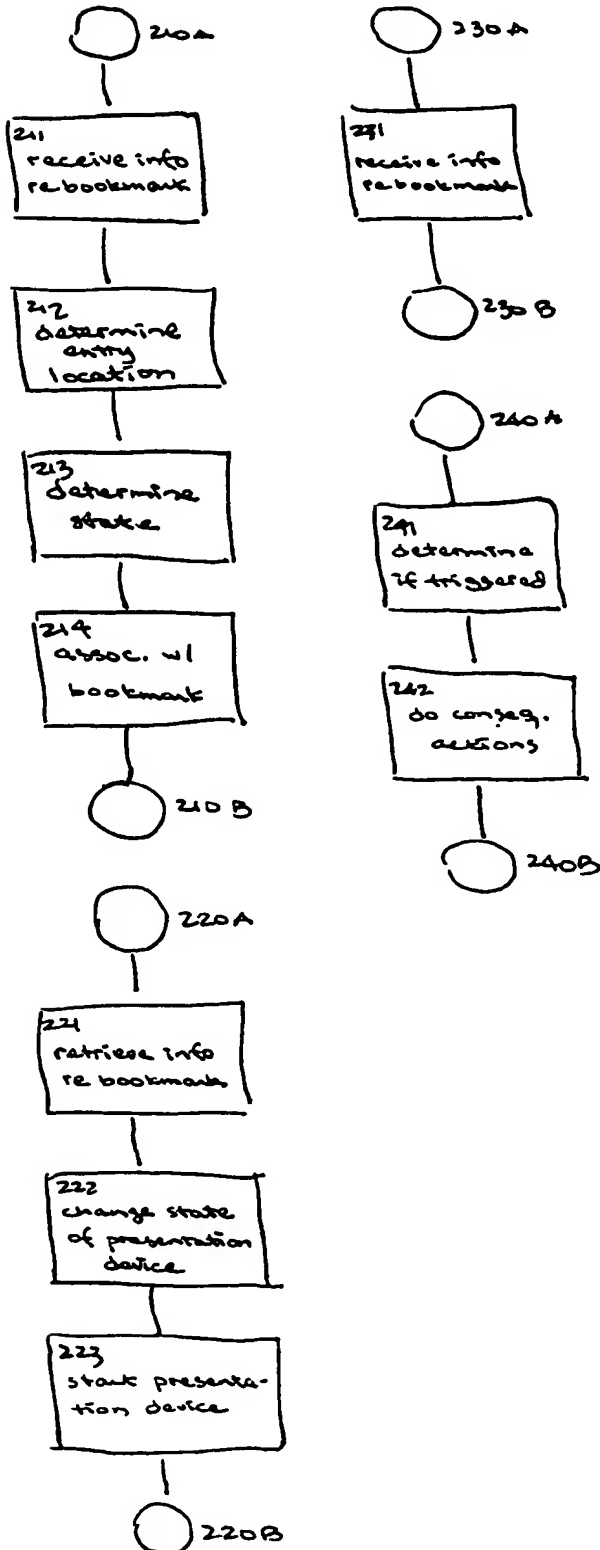Docket: 217.1019.02
Sheet: 2 of 2

2/2

200

210A

211 receive info re bookmark

212 determine entry location

213 determine state

214 assoc. w/ bookmark

210 B

220 A

221 retrieve info re bookmark

222 change state of presentation device

223 start presentation device

220B

230 A

231 receive info re bookmark

230 B

240 A

241 determine if triggered

242 do conseq. actions

240B

figure 2.

22883

Application Data Sheet

Application Information

Application Type::	Regular
Subject Matter::	Utility
CD-ROM or CD-R?::	None
Title Line One::	Bookmarks and Watchpoints for Selection
Title Line Two::	and Presentation of Media Streams
Title Line Three::	
Attorney Docket Number::	217.1019.02
Request for Early Publication?::	No
Request for Non-Publication?::	Yes
Suggested Drawing Figure::	1
Total Drawing Sheets::	2
Small Entity?::	No
Petition included?::	No
Petition Type::	
Licensed US Govt. Agency::	
Contract or Grant Numbers::	
Secrecy Order in Parent Appl.?::	No

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rrespondence Information

rrespondence Customer Number::   22883

presentative Information

presentative Customer Number::	22883

mestic Priority Information

plication::	Continuity Type::	Parent Application::	Parent Filing Date::
is Application	Non-Provisional of	60/488,367	07/15/03
is Application	Continuation-in-part of	10/418,739	04/18/03
is Application	Continuation-in-part of	10/418,949	04/18/03
is Application	Non-Provisional of	60/439,330	01/09/03

Document made available under the Patent Cooperation Treaty (PCT)

International application number: PCT/US04/022847

International filing date: 14 July 2004 (14.07.2004)

Document type: Certified copy of priority document

Document details: Country/Office: US
Number: 10/655,496
Filing date: 03 September 2003 (03.09.2003)

Date of receipt at the International Bureau: 06 September 2004 (06.09.2004)

Remark: Priority document submitted or transmitted to the International Bureau in compliance with Rule 17.1(a) or (b)